Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) A terbium borate-based yellow phosphor represented by the following general formula:

$(Tb_{1-x-y-z}RE_xA_y)_3D_aB_bO_{12}:Ce_z$

wherein: RE is at least one rare earth element selected from the group consisting of Y, Lu, Sc, La, Gd, Sm, Pr, Nd, Eu, Dy, Ho, Er, Tm and Yb; A is at least one typical metal element selected from the group consisting of Li, Na, K, Rb, Cs and Fr; D is at least one typical amphoteric element selected from the group consisting of Al, In and Ga; $0 \leq x < 0.5$; $0 \leq y < 0.5$; $0 < z < 0.5$; $0 < a < 5$; and $0 < b < 5$.

2. (Original) The terbium borate -based yellow phosphor according to claim 1, wherein x, y, z, a and b are selected to satisfy: $0 < x + y + z < 1$; and $4 \leq a + b \leq 7$.

3. (Original) The terbium borate -based yellow phosphor according to claim 1, wherein the phosphor has an absorption peak in the range from about 420 nm to 480 nm and an emission peak in the range from about 530 nm to 570 nm.

4. (Canceled) A preparation method of a terbium borate-based yellow phosphor comprising:

preparing a precursor solution containing a compound containing at least one element selected from the group consisting of aluminum, indium and gallium, a terbium-containing compound, a cerium-containing compound and boric acid;

forming droplets by spraying said precursor solution; and

drying and pyrolyzing said droplets at 200 to 1,500 ℃ and heat treating the same at 800 to 1,800 ℃.

5. (Original) A white semiconductor light emitting device comprising:

a semiconductor light emitting diode; and

a phosphor coating layer comprising a yellow phosphor that absorbs a portion of light emitted by said semiconductor light emitting diode and emits light of wavelength different from that of the absorbed light and a transparent resin:

wherein said yellow phosphor comprises cerium-activated terbium, boron and amphoteric typical element, and said amphoteric typical element is selected from a group consisting of Al, In and Ga, and the mixture of the foregoing.

6. (Original) The white semiconductor light emitting device according to claim 5, wherein said phosphor is represented by the following general formula:

$(Tb_{1-x-y-z}RE_xA_y)_3D_aB_bO_{12}:Ce_z$

wherein: RE is at least one rare earth element selected from the group consisting of Y, Lu, Sc, La, Gd, Sm, Pr, Nd, Eu, Dy, Ho, Er, Tm and Yb; A is at least one typical metal element selected from the group consisting of Li, Na, K, Rb, Cs and Fr; D is at least one typical

amphoteric element selected from the group consisting of Al, In and Ga; $0 \leq x < 0.5$; $0 \leq y < 0.5$; $0 < z < 0.5$; $0 < a < 5$; and $0 < b < 5$.

7. (Currently Amended) The white semiconductor light emitting device according to claim 5, wherein said yellow phosphor has an absorption peak in the range from about 420 nm to 480 nm and an emission peak in the range from about 530 nm to 570 nm.

8. (Original) The white semiconductor light emitting device according to claim 5, wherein said semiconductor light emitting diode comprises a substrate and a nitride semiconductor layer on top of the substrate.

9. (Original) The white semiconductor light emitting device according to claim 8, wherein said substrate is made of sapphire or silicon carbide.

10. (Original) The white semiconductor light emitting device according to claim 8, wherein said nitride semiconductor layer includes a GaN, InGaN, AlGaN or AlGaInN-based semiconductor.

11. (Original) The white semiconductor light emitting device according to claim 5, wherein said phosphor coating layer further comprises a zinc selenium-based red phosphor.

12. (Original) The white semiconductor light emitting device according to claim 11, wherein the content of said zinc selenium -based red phosphor is 1 to 40 wt% based on the weight of the yellow phosphor.

13. (Original) The white semiconductor light emitting device according to claim 5, wherein said transparent resin is a transparent epoxy resin or silicone resin.

14. (Original) A lead type white semiconductor light emitting device comprising:

a mount lead comprising a lead and a recess portion on said lead;

a blue light emitting LED chip which is disposed in said recess portion, and anode and cathode of which are connected to the lead of said mount lead by metal wires;

a phosphor coating layer filled inside said recess portion to cover said LED chip; and

a casing that seals the mount lead excluding lower portions of said mount lead, said LED chip and phosphor coating layer:

wherein said phosphor coating layer comprises a transparent resin and a terbium borate-based yellow phosphor represented by the following general formula:

$(Tb_{1-x-y-z}RE_xA_y)_3D_aB_bO_{12}:Ce_z$

wherein: RE is at least one rare earth element selected from the group consisting of Y, Lu, Sc, La, Gd, Sm, Pr, Nd, Eu, Dy, Ho, Er, Tm and Yb; A is at least one typical metal element selected from the group consisting of Li, Na, K, Rb, Cs and Fr; D is at least one typical amphoteric element selected from the group consisting of Al, In and Ga; $0 \leq x < 0.5$; $0 \leq y < 0.5$; $0 < z < 0.5$; $0 < a < 5$; and $0 < b < 5$.

15. (Original) A surface mount type white semiconductor light emitting device of an injection-molded reflector type comprising:

a casing having a recess portion at a top thereof and equipped with metal terminals;

a blue light emitting LED chip which is located in said recess portion, and anode and cathode of which are connected to said metal terminals by metal wires; and

a phosphor coating layer filled inside said recess portion to cover said LED chip:

wherein said phosphor coating layer comprises a transparent resin and a terbium borate-based yellow phosphor represented by the following general formula:

$(Tb_{1-x-y-z}RE_xA_y)_3D_aB_bO_{12}:Ce_z$

wherein: RE is at least one rare earth element selected from the group consisting of Y, Lu, Sc, La, Gd, Sm, Pr, Nd, Eu, Dy, Ho, Er, Tm and Yb; A is at least one typical metal element selected from the group consisting of Li, Na, K, Rb, Cs and Fr; D is at least one typical amphoteric element selected from the group consisting of Al, In and Ga; $0 \leq x < 0.5$; $0 \leq y < 0.5$; $0 < z < 0.5$; $0 < a < 5$; and $0 < b < 5$.

16. (Original) A surface mount type white semiconductor light emitting device of the PCB (printed circuit board) type comprising a blue LED chip and a phosphor coating layer on a PCB layer, wherein said phosphor coating layer comprises a terbium borate-based yellow phosphor represented by the following general formula:

$(Tb_{1-x-y-z}RE_xA_y)_3D_aB_bO_{12}:Ce_z$

wherein: RE is at least one rare earth element selected from the group consisting of Y, Lu, Sc, La, Gd, Sm, Pr, Nd, Eu, Dy, Ho, Er, Tm and Yb; A is at least one typical metal element selected from the group consisting of Li, Na, K, Rb, Cs and Fr; D is at least one typical amphoteric element selected from the group consisting of Al, In and Ga; $0 \leq x < 0.5$; $0 \leq y < 0.5$; $0 < z < 0.5$; $0 < a < 5$; and $0 < b < 5$.

17. (Original) A liquid crystal display incorporating the white semiconductor light emitting device according to any one of claims 5 to 13 as a back light source.